REMARKS

Claims 3-5 and 8-30 are now pending. Claims 11-16, 19, 22, 25 and 26 are amended herein and Claims 27-30 are added. Further consideration of this application is requested.

An RCE is filed concurrently herewith. All of the pending claims are believed to be patentably distinguishable from the combination of Shuman in view of Tognazzini for the reasons discussed in greater detail hereinafter.

I. Combination of Shuman and Tognazzini

First, without addressing the specifics of the claims, the Applicant respectfully submits that there is no motivation to modify the teachings of Shuman so as to include the features of Tognazzini and in fact these references are believed to teach away from each other. As such, the basic combination of Shuman and Tognazzini used to reject the claims is believed deficient and the claims thereby distinguishable therefrom for this reason alone. Additional detailed comments as to the claims are also provided hereinafter.

Generally, the Applicant's invention relates to a vehicle operating unit for reducing speed of a vehicle once an additional detection means located adjacent the road and in advance of the vehicle identifies a danger state or emergency condition. The vehicle includes a receiver that receives a transmitter signal that indicates the presence of the danger state and then outputs a control signal that is received by an automatic braking device. The vehicle also has a set or stored target traveling speed wherein upon receipt of the control signal that is indicative of the presence of a danger state, the automatic braking device operates to automatically reduce the actual vehicle traveling speed to the target traveling speed. During this speed reducing process, the automatic braking device repeatedly compares the target and actual traveling speeds to ensure the vehicle speed is reduced to the target speed. This invention as claimed is discussed in further detail. However, generally, this system is distinctly different from the applied prior art.

As to Shuman, this system is a complex system for complete control of a vehicle. The Office Action alleges a number of features are disclosed in Shuman and that additional features not disclosed in Shuman are then disclosed in Tognazzini. However, it is noted that there is no motivation to combine the teachings of Shuman and Tognazzini and in fact these references when considered in their entirety actually teach away from such a combination. More particularly, it is noted that Shuman discloses a comprehensive, complex system wherein sensors on the vehicle not only monitor the vehicle itself but also the surroundings to create a comprehensive model of the surrounding environment.

Page 3 of the Office Action generally characterizes Shuman using language from Applicant's claims and with reference to the disclosure of Lines 38-43 on Column 22 of Shuman. This reference to Column 22 relates to a speed calculation process that outputs a calculated speed. When reviewing the total process, it is noted that this speed calculation process is one small step amongst a complex string of steps to be able to control operation of the Shuman vehicle. More particularly, this speed calculation process is part of the "adaptive cruise control application" wherein this cruise control application receives data from multiple systems namely the driver interface 250, the driver profile recorder, the positioning system, the route guidance program, the external condition monitor program and the obstacle detection program. This cruise control system takes all of this data and performs a "relating process" to relate this data of surrounding vehicles with the actual data of the vehicle being controlled. This relating process then outputs this information to the speed calculation process wherein it is noted in the same cited disclosure of Column 22 that the speed calculation process "continuously updates its calculation to take into account changes in the vehicle environment which might require speeding up, slowing down, or stopping the vehicle". As such, the calculated speed does not represent

just a speed reduction but is actually any desired speed adjustment for the vehicle which may involve both acceleration and deceleration of the vehicle and apparently with any magnitude.

After the speed calculation process, the calculated speed is then outputted to a drive recorder and also used by a critical vehicle control program 230 which control program 230 also receives numerous data inputs as indicated in Column 23, Lines 1-13. The control program performs an integrator process which further processes all of the data to generate an action list which then is sent to a command process. As noted, this a multi-step processing involving multiple steps of data processing to be able to generate control commands for the vehicle. Based on the disclosure of Shuman, any data inputs initially detected relative to the surrounding environment are first sent through the entire adaptive cruise control application and the vehicle control program processes to thereby generate command processes that take into account numerous external and internal variables associated with the vehicle and its environment.

Tognazzini, however is a completely different system which would not be used in combination with Shuman.

More particularly, Tognazzini includes multiple sensors in the road environment to monitor fog condition. Then it transmits information to a driver based upon preferred speeds determined through the roadside detector system. Warnings are then generated and communicated visually or by a radio transmission to create verbal warnings through the radio or the like. This system would not be used with Shuman.

The entire Shuman system depends upon a complex system of data inputs and sensors which creates a model of the vehicle environment and then uses this to perform an onboard calculation as to a desired vehicle speed. There is no use whatsoever in Shuman for a roadside system which makes a determination as to vehicle speed since this would completely eliminate the very purpose and functions of the onboard

sensors of Shuman and the onboard speed calculations generated therefrom. Shuman would not simply rely upon a speed limit warning received from a roadside system since that would overlook the entire system of onboard inputs and proximity sensors used in Shuman to generate a speed in Shuman that takes into account all of the onboard variables.

Based upon the foregoing, it is believed that there is no motivation to combine Shuman and Tognazzini when the entirety of each system is considered which systems are distinctly different and inconsistent with eachother.

II. <u>Claims Further Are Distinguishable From Shuman And Tognazzini</u>

In addition to the foregoing, the claims are also believed to define specific features which are not disclosed, taught or suggested by the prior art of record.

<u>Claim 11</u>

Claim 11 is amended to further emphasize that the target traveling speed is set inside the vehicle and as the vehicle is braked to the target speed, the actual and target speeds are repeatedly compared. Thus, as the actual speed is reduced, the target speed remains set and the actual speed is repeatedly compared to the set target speed as the actual speed is reduced by the automatic braking device.

While the Office Action states that the "reference value...is set", it is noted that Shuman does not use a set target speed but rather "continuously updates" a desired speed. Col. 22, line 44 states that the speed calculation process "continuously updates its calculation" of the calculated speed to take into account the changes in the vehicle environment. Thus, the calculated speed does not remain set but in fact is continuously updated. Further, this calculated speed is any speed higher or lower than the vehicles speed which means the vehicle may be sped up or slowed down or whatever action is required depending upon the real time conditions located immediately adjacent the vehicle.

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This is the very function of the cruise control device which takes into account the vehicle environment, such as the interval between vehicles.

Further, the cruise control uses the same control system to speed up, slow down or stop the vehicle and thereby maintain appropriate vehicle distances, and thus, this system must allow for complete control of acceleration and deceleration of the vehicle. Because of these requirements, the speed of the Shuman is not reduced to one set speed but instead requires continuous variation of the desired speed. Even when completely stopped, the desired speed is continuously calculated to take into account any real time changes, which is required and specifically envisioned by the Shuman system.

Hence, Shuman does not set a target speed and continuously compare the actual and target speeds to reduce speed but instead continuously updates the speed calculation during vehicle operation. Further, Shuman would not and could not automatically brake to a set target speed since it would then not be able to take into account all of the numerous inputs and variables considered by the speed calculation process and the integrator process. Because of this continuous control and calculation, Shuman in fact does require constant inputs and would not be able to function by merely receiving a transmitter signal operating without regard to other signals.

Claim 11, however, defines the vehicle receiver as receiving the road way transmitter signal and outputting a control signal that is received by the automatic braking device. The automatic braking device then operates based on the generation and receipt of this control signal wherein the automatic braking device reduces the actual speed to a target speed. This target speed is set and a comparison of the actual speed with the set target speed repeated is repeated so that the automatic braking device operates with reference to

this repeated comparison to reduce the actual speed to the target speed.

Shuman, however, does not have a set speed and would not use a set speed since it must continuously update itself to take into account real time changes. Further, Shuman does not have a target speed to which the actual speed is automatically reduced, since Shuman completely controls both acceleration and deceleration of the vehicle.

Accordingly, Claim 11 and dependent Claims 3-5 are all believed allowable.

Claim 12

Claim 12 is believed allowable for the same reasons as Claim 11, and dependent Claims 8-10 would then also be allowed.

Claim 13

Claim 13 defines the automatic breaking device as being automatically actuated based on receipt of the control signal and repeatedly comparing the actual traveling speed with the set traveling speed to produce the braking force and thereby reduce the actual traveling speed to the set target traveling speed. As discussed above, Shuman does not disclose providing a set traveling speed or repeatedly comparing an actual traveling speed with the set traveling speed during an automatic braking operation. Further, Shuman does not disclose performing such automatic breaking in response to a control signal that is outputted in response to a transmitter signal received by a receiver on the vehicle. Shuman does not automatically perform any speed change in response to any individual signal or receipt of any single signal that might be received on the vehicle but instead only performs a multi-process data evaluation to generate command signals. Hence, Claim 13 is believed distinguishable from Shuman and Tognazzini and dependent Claims 14 and 15 are also believed allowable for this reason alone.

Claim 16

Claims 16 defines that a set target traveling speed is provided in the vehicle wherein the actual traveling speed is repeatedly compared with the set reference value for the target traveling speed during automatic operation of the automatic braking device. Further, it is noted that the automatic braking device operates independent of continued receipt of additional transmitter signals from the transmitter on the road. It is believed that this feature is also not disclosed, taught or suggested by Shuman which requires continuous updating of the speed calculation by taking into account continuous monitoring of all of the inputs of the vehicle. For these reasons, Claim 16 as well as dependent Claims 17 and 18 are believed in condition for allowance.

Claim 19

This claim also defines that the automatic braking device repeatedly compares the actual traveling speed with the set reference value and operates with reference to this comparison to reduce the actual speed to the set speed. Here again, this claim is believed distinguishable from Shuman and Tognazzini along with dependent Claims 20 and 21.

Claim 22

Claim 22 also is amended to highlight that the target traveling speed is set and that the actual speed is repeatedly compared thereto. Further, Claim 22 defines that when the actual speed is less than the target speed, the "comparison is ended". This is not disclosed in Shuman or Tognazzini. Accordingly, independent Claim 22 and dependent Claims 23 and 24 are believed allowable.

Claim 25

Claim 25 further defines that the automatic braking device repeatedly compares the actual and stored reference

value for the target speed and the automatic braking device operates with reference to this repeated comparison. Also, Claim 25 defines that the control signal indicates that the automatic braking device is to be operated. Shuman does not disclose a receiver that receives a transmitter signal and outputs a control signal indicating that an automatic braking device is to operate. Hence, Claim 25 is believed patentably distinguishable from Shuman and Tognazzini.

Claim 26

This claim also defines the repeated comparison of actual and stored target traveling speeds and is believed allowable for this reason. Also, Claim 26 defines the control signal as indicating that the automatic braking device is to be operated which further distinguishes the prior art. Also, Claim 26 defines that as a result of receipt of the control signal, the automatic braking device initiates and continues actuation of the wheel brakes without requiring any additional transmitter signals. Based on the foregoing, Claim 26 is believed allowable.

Claims 27-30

Claims 27-30 are now added and are believed distinguishable from the art of record.

Claim 27 further defines that an operating unit of a vehicle repetitively compares a reference value set inside the vehicle with a vehicle speed signal, and when the actual speed excess the target speed, the repetitive comparison is implemented and an operation signal issued to a vehicle device. When the actual speed is less than the target speed, then the repetitive comparison is ended. The features as defined by this claim are believed patentably distinguishable from Shuman and Tognazzini and hence are believed allowable.
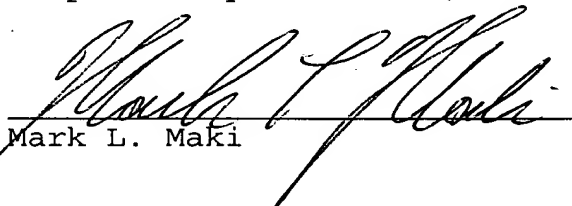
Independent Claim 29 is similar to Claim 27 in that it also references the set reference value and the repetitive

comparison and when these features are considered as whole with the remaining features of this claim, Claim 29 is then believed allowable.

Claims 28 and 30 further defines the claimed vehicle device as applying the brakes in the vehicle.

Based on the foregoing, all of the pending claims are believed allowable, and further and favorable consideration is respectfully solicited.

Respectfully submitted,

Mark L. Maki

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FLYNN, THIEL, BOUTELL	Dale H. Thiel	Reg. No. 24 323
& TANIS, P.C.	David G. Boutell	Reg. No. 25 072
2026 Rambling Road	Ronald J. Tanis	Reg. No. 22 724
Kalamazoo, MI 49008-1631	Terryence F. Chapman	Reg. No. 32 549
Phone: (269) 381-1156	Mark L. Maki	Reg. No. 36 589
Fax: (269) 381-5465	Liane L. Churney	Reg. No. 40 694
	Brian R. Tumm	Reg. No. 36 328
	Steven R. Thiel	Reg. No. 53 685
	Donald J. Wallace	Reg. No. 43 977
	Kevin L. Pontius	Reg. No. 37 512
	Sidney B. Williams, Jr.	Reg. No. 24 949

Encl: None

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